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NATIONAL DAM SAFETY PROGRAM. ED PYLKAS DAM (INVENTORY NUMBER NY--ETC(U)
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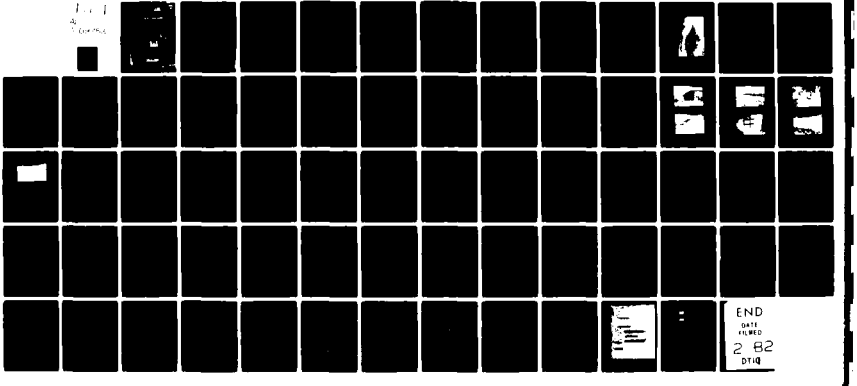

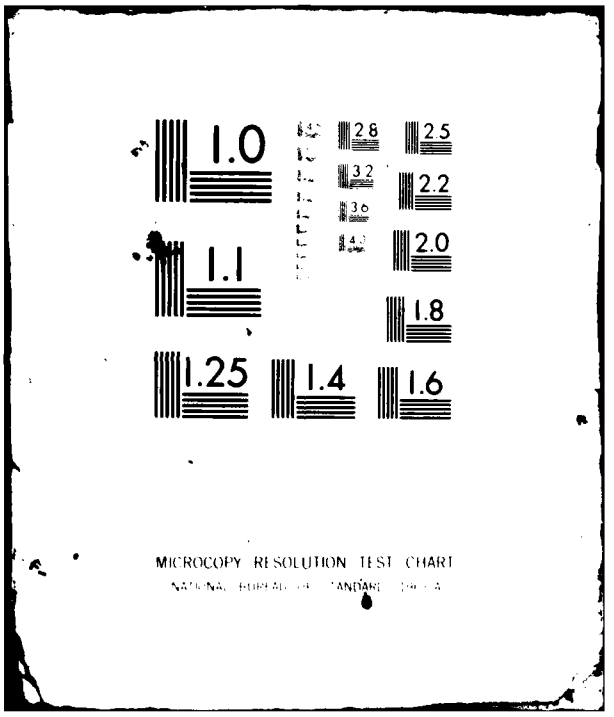
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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
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Dam Safety
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Visual Inspection
Hydrology, Structural Stability
Ed Pylkas Dam
Seneca River Basin
Tioga County

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.

Based on the evaluation of the existing conditions, the condition of the Ed Pylkas Dam is considered to be good. The examination of documents and visual observations did not reveal conditions which constitute a hazard to human life or property.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

The spillway capacity was evaluated according to the recommended procedure and was found to pass the required spillway design flood of 100 percent of the Probable Maximum Flood (PMF). Therefore, the spillway capacity is rated as adequate.

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the spillway design flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
ED PYLKAS DAM
N.Y. 355
DEC I.D. NO. 67-2067
SUSQUEHANNA RIVER BASIN
TIOGA COUNTY, NEW YORK

TABLE OF CONTENTS

TABLE OF CONTENTS
(Continued)

TABLE OF CONTENTS
(Continued)

*Not Included Due To Lack of Pertinent Data

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam:	Ed Pylkas Dam N.Y. 355
State Located:	New York
County Located:	Tioga
Stream:	Dean Creek (a tributary of Catatonk Creek)
Date of Inspection:	March 25, 1981 and April 30, 1981

ASSESSMENT

Based on the evaluation of the existing conditions, the condition of the Ed Pylkas Dam is considered to be good. The examination of documents and visual observations did not reveal conditions which constitute a hazard to human life or property.

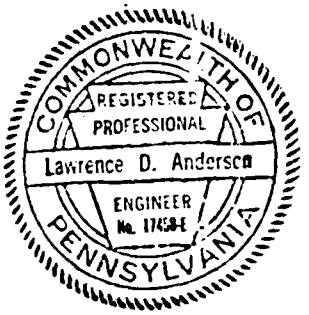
The spillway capacity was evaluated according to the recommended procedure and was found to pass the required spillway design flood of 100 percent of the Probable Maxiumu Flood (PMF). Therefore, the spillway capacity is rated as adequate.

The following recommendations should be implemented within three months from issuance of this report.

1. The need for replacing the corroded downstream segment of the primary spillway outlet pipe and relocating the barbed wire fence across the discharge channel of the emergency spillway should be evaluated.

2. An emergency action plan should be developed including a formal warning system to alert the downstream residents in the event of an emergency.

Assessment - Ed Pylkas Dam



Lawrence D. Andersen, P.E.
Vice President
D'Appolonia Consulting Engineers, Inc.
Pittsburgh, Pennsylvania

Approved by: _____
Col. W. M. Smith, Jr.
New York District Engineer

Date: 14 Aug 81

ED PYLKAS DAM
N.Y. 355
DEC I.D. 67-2067
MARCH 25, 1981

Downstream Face

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
ED PYLKAS DAM
N.Y. 355
DEC I.D. NO. 67-2067
SUSQUEHANNA RIVER BASIN
TIOGA COUNTY, NEW YORK

SECTION 1: PROJECT INFORMATION

1.1 GENERAL

a. Authority

The Phase I Inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers, to fulfill the requirements of the National Dam Inspection Act, Public Law 92-367.

b. Purpose of Inspection

The inspection was to evaluate the existing conditions of the subject dam to identify deficiencies and hazardous conditions, determine if they constitute hazards to life and property, and recommend remedial measures where necessary.

1.2 DESCRIPTION OF PROJECT

a. Dam and Appurtenances

The Ed Pylkas Dam consists of an earth embankment approximately 420 feet long with a maximum height of 37 feet from the downstream toe. The embankment has a crest width of 14 feet and an upstream slope of 3 horizontal to 1 vertical. The downstream slope is 2 horizontal to 1 vertical. A 10-foot-wide berm was provided on the upstream slope at the level of the primary spillway crest.

The spillways for the dam consist of a vegetated earth emergency channel located on the left abutment and a drop inlet pipe primary spillway located at the center of the dam. The primary spillway structures are comprised of a concrete drop inlet structure which discharges into a 24-inch corrugated metal pipe terminating at a plunge pool at the downstream toe. The drop inlet structure is equipped with a trash rack. The outlet pipe is encased in concrete and has been provided with antiseep collars. The emergency spillway is a trapezoidal earth channel with a base width of 54 feet and side slopes of 3 horizontal to 1 vertical.

The primary spillway intake level is located near the upstream toe level of the dam. Therefore, the primary spillway also functions as a reservoir drainpipe.

b. Location

The dam is located on Dean Creek, a tributary of Catatonk Creek approximately three miles southwest of the village of Spencer in Tioga County, New York. Plate 1 illustrates the location of the dam.

c. Size Classification

The dam is classified as a small dam based on 37-foot height and maximum storage capacity of 206 acre-feet.

d. Hazard Classification

The dam is classified to be in high hazard category. A house is located immediately downstream from the dam and two farms, located about one-half mile and two miles downstream from the dam, are considered to be within the potential floodplain of Dean Creek.

It is estimated that failure of the dam under maximum pool level would cause loss of more than a few lives and appreciable property damage in this area.

e. Ownership

The dam is owned by Mr. Sidney Lincoln, R.D. #1, Box 42, Lockwood, NY 14859, (607) 589-6817, and operated by Tioga County Soil and Water Conservation District.

f. Purpose of Dam

The dam is a floodwater retarding structure.

g. *Design and Construction History*

The dam was designed by the U.S. Department of Agriculture, Soil Conservation Service (SCS) in 1954. Construction of the dam was completed in 1955.

h. Normal Operating Procedure

The reservoir is normally maintained at the crest level of the uncontrolled primary spillway at Elevation 1265 (USGS Datum). The emergency spillway crest is located at Elevation 1279.9.

1.3 PERTINENT DATA

Elevations referred to in this section and subsequent sections of the report were calculated based on field measurements assuming the primary spillway crest level at be at Elevation 1265.0 (USGS Datum) which was interpolated as normal pool level from the USGS 7.5-minute Van Etten quadrangle. Elevations shown in the design drawings appear to be relative to an arbitrary site datum.

a. Drainage Area (acres)	440
b. Discharge at Dam (cfs)	
Principal spillway at top of dam	65

Auxiliary spillway at top of dam	2060
Total spillway capacity at top of dam	2125

c. Elevation (USGS Datum) (feet)

Top of dam	1284.4
Auxiliary spillway crest	1279.9
Principal spillway crest	1265.0

d. Reservoir (acres)

Surface area at top of dam	24.2
Surface area at crest of auxiliary spillway	14.7
Surface area at crest of principal spillway	2.3

e. Storage Capacity (acre-feet)

Top of dam	206
Auxiliary spillway crest	125
Principal spillway crest	12

f. Dam

Type	Earth embankment
Length	420 feet
Height	35 feet
Top width	14 feet
Side slopes	Downstream: 2H:1V Upstream: 3H:1V
Zoning	No
Impervious core	No
Cutoff	No
Grout curtain	No

g. Primary Spillway

Type	3-foot-square drop inlet
Length	9-foot perimeter
Crest elevation	1265

h. Emergency Spillway

Type	Vegetated trapezoidal earth channel
Length	54 feet (as measured)
Crest elevation	1279.9

i. Reservoir Drain

Type	8-inch-steel pipe
Length	30± feet
Access	Inaccessible
Regulating facilities	None (plugged with concrete as required by design)

SECTION 2: ENGINEERING DATA

2.1 DATA AVAILABLE

Available information was obtained from New York State Department of Environmental Conservation, Dam Safety Division files, and from the files of the SCS in Syracuse, New York. Available information includes design and as-built drawings, limited engineering reports, and dam inspection reports conducted by the SCS.

2.2 GEOLOGY

The Ed Pylkas Dam is located in the glaciated Allegheny Plateau section of the Appalachian Plateau Province. A regional geology map is included in Appendix F. This section is characterized as a maturely dissected plateau with the features modified by continental glaciation, including deposition of glacial till in the valleys.

The dam site is near the axis of a northeast trending syncline (approximately north 70 degrees east). The folding is gentle with the maximum dip of the limbs one to two degrees. The strata at the dam are nearly horizontal and the dip of the strata are affected locally by the folding; however, regionally, the rock strata dip south to southwest at approximately 100 to 150 feet per mile. Regional discontinuities trend approximately north-south with the east-west trend less predominant.

The rock strata in the area consist of unconsolidated Pleistocene glacial till (Wisconsin Drift) underlain by strata of the Lower West Falls Group (Upper Devonian Age). The glacial till consists of a mixture of clay and silt with varying quantities of gravel. The glacial till is relatively thin on hilltops and slopes and thicker in the valleys. The bedrock consists of a thick sequence of interbedded very dark gray to black shale and siltstone which may be up to 2,000 feet thick. The upper portion of the hills west of the dam consists of interbedded very dark gray shales and thin gray siltstone.

The abutment slopes are relatively gentle and not susceptible to landslide slope movement.

2.3 SUBSURFACE INVESTIGATION

A review of available information indicates the subsurface investigation for the dam consisted of shallow test pits. Plate 2 illustrates a subsurface profile included in the design drawings. A SCS Soils Analysis Report indicates the soils in the area generally consist of silty clays.

2.4 EMBANKMENT AND APPURTENANT STRUCTURES

Plates 3, 4, and 5 show the plan and details of the dam and appurtenant structures. To the extent that can be determined, the dam appears to be a homogeneous embankment. No references were found to indicate whether the embankment incorporated an impervious core, a cutoff trench, or internal drainage system. As shown in Plate 4, the dam was designed to have a slope of 2 horizontal to 1 vertical downstream, and 3 horizontal to 1 vertical upstream with a crest width of 14 feet. A berm was provided on the upstream slope in the vicinity of the primary spillway crest level. Plates 4 and 5 show the details of the primary spillway. The primary spillway structures are comprised of a concrete drop inlet structure discharging into a 24-inch corrugated metal pipe encased in concrete, terminating at a plunge hole at the downstream toe. The outlet pipe is equipped with antiseep collars.

Hydrology and hydraulic analyses conducted for the design are summarized in a SCS report entitled, "Dean Creek Watershed Project, Project NY-WP-3, Ed Pylkas Dam," dated May 21, 1954. The report indicates that the dam was designed to pass a 100-year flood with a freeboard of three feet. The design inflow and outflow hydrographs are shown in Plate 6. Plate 7 shows the design high water elevation.

2.5 CONSTRUCTION RECORDS

None available. Based on visual observation, it appears that no major postconstruction changes were instituted.

2.6 OPERATING RECORDS

Because the dam is an ungaged flood-retarding structure, no operating records are maintained for the dam.

2.7 EVALUATION OF DATA

The information obtained from the state and SCS files is considered to be adequate for Phase I inspection purposes.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General

Visual inspections of the dam were conducted on March 25 and April 30, 1981. On both dates, the pool level was approximately at the invert level of the primary spillway riser.

b. Embankment

In general, the condition of the dam is considered to be good. No signs of distress, seepage, or misalignment were observed. The faces of the dam and the crest are covered with grass and found to be adequately maintained. The top of the dam was surveyed relative to the emergency spillway crest elevation and found to be reasonably in conformance with the design elevations with camber.

c. Primary Spillway

The primary spillway facilities consist of a concrete drop inlet structure discharging into a 24-inch corrugated metal pipe encased in concrete and terminating at a riprapped plunge pool at the downstream toe. Visible components of the primary spillway were found to be in satisfactory condition except the bottom of the last uncased segment of the primary spillway outlet pipe which was found to be corroded, releasing flow from its bottom. The need for replacing this pipe should be evaluated.

d. Emergency Spillway

The emergency spillway is a trapezoidal vegetated earth channel located on the left abutment. The emergency spillway channel was found to be in good condition. The grass cover is well established and adequately maintained. While the approach channel was found to be free of brush and trees or debris which may pose a potential for blockage of the spillway, a barbed wire fence across the emergency spillway discharge channel, a short distance downstream of the control section, may pose a potential for partial blockage of the channel by debris. The need for relocating this fence further downstream should be evaluated.

e. Reservoir Drain

The primary spillway intake is located near the upstream toe of the dam and can drain approximately 90 percent of the 125 acre-feet storage at the emergency spillway crest level. The remaining 12 acre-feet of storage below the primary spillway crest cannot be drained. The design drawing included in Plate 4 indicates that the reservoir drainpipe which extends from the upstream toe of the dam to the primary spillway drop inlet structure was to be plugged by concrete in the completion of the dam.

f. *Downstream Channel*

The downstream channel below the primary spillway plunge pool is the natural stream bed. The channel appears to be stable in the near vicinity of the dam.

g. Reservoir

There are no visible signs of instability or sedimentation problems within the reservoir area.

3.2 EVALUATION

The dam was found to be in good condition. It is considered advisable that the need for replacing the corroded segment of the primary spillway outlet pipe and relocating the barbed wire fence across the emergency spillway discharge channel should be evaluated.

SECTION 4: OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

The reservoir is normally maintained at the primary spillway crest level with excess inflow discharging through the primary spillway. The dam is a flood retarding structure and has no formal operating procedure.

4.2 MAINTENANCE OF THE DAM

The dam is maintained by Tioga County Soil and Water Conservation District and the maintenance condition of the dam is considered to be satisfactory.

4.3 WARNING SYSTEM IN EFFECT

No formal warning system exists for the dam.

4.4 EVALUATION

The maintenance condition of the dam is considered to be good. Development of a formal warning system is considered to be advisable.

SECTION 5: HYDRAULIC/HYDROLOGY

5.1 DRAINAGE AREA CHARACTERISTICS

Ed Pylkas Dam has a watershed of 0.7 square mile. The drainage area is comprised of woodlands and farmlands. Relief ranges from moderate to steep.

5.2 ANALYSIS CRITERIA

As previously stated, Ed Pylkas Dam is classified as a small dam in the high-hazard category. Under the recommended criteria for evaluating emergency spillway discharge capacity, such impoundments are required to pass one-half to full PMF. In view of the high downstream damage potention, full PMF was selected as the spillway design flood.

The PMF inflow hydrograph for the reservoir was determined using the dam safety version of the HEC-1 computer program developed by the hydrologic engineering center of the U.S. Army Corps of Engineers. The data used for the computer input are presented in Appendix D. The PMF inflow hydrograph was found to have a peak flow of 2247 cfs. Computer outputs are also included in Appendix D.

5.3 SPILLWAY CAPACITY

The flood discharge facilities for the dam consist of primary and emergency spillways. The emergency spillway on the left abutment is a trapezoidal earth channel with a base width of 54 feet and side slopes of 3 horizontal to 1 vertical. The PMF inflow hydrograph was routed through the reservoir and it was found that the dam can pass 100 percent of the PMF without overtopping the embankment. Based on the available head relative to a low spot on the crest of the dam, the capacities of the primary and emergency spillways are calculated to be 65 cfs amd 2060 cfs, respectively. Primary and emergency spillway rating calculations are also included in Appendix D.

5.4 RESERVOIR CAPACITY

The dam impounds a reservoir with a storage capacity of 12 acre-feet at the primary spillway crest level, 129 acre-feet at the emergency spillway crest level, and 206 acre-feet at the top of dam.

5.5 FLOODS OF RECORD

Not available.

5.6 OVERTOPPING POTENTIAL

The dam can pass 100 percent of the PMF without overtopping the embankment. Maximum pool level was computed to be at Elevation 1284.45, which is slightly above the measured low spot on the crest of the dam at Elevation 1284.4. The low spot is located at the junction of the dam crest and the side slope of the emergency spillway. The remaining portion of the dam crest is between Elevations 1885.3 and 1886.5.

PMF Ratio	Maximum Outflow (cfs)	Maximum Depth of Overtopping (feet)
100	2091	0.05

5.7 EVALUATION

The spillway can pass the recommended spillway design flood of full PMF without overtopping the embankment; therefore, spillway capacity is classified to be adequate according to the recommended criteria.

SECTION 6: STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations

As discussed in Section 3, the field observations did not reveal any signs of distress that would significantly affect the stability of the dam at this time. However, it should be understood that the dam is a flood control facility and was at normal pool level at the time of inspection. Therefore, it was not under maximum loading conditions which would occur only during the passage of major floods.

b. Design and Construction Data

Available information does not include any design and construction data. Further, no reference was found to indicate whether laboratory soils testing, stability, and seepage analysis were conducted for the design of the embankment. Therefore, the structural stability of the dam could not be assessed. However, based on visual observations, static stability of the dam appears to be satisfactory.

c. Postconstruction Changes

None reported.

d. Seismic Stability

The dam is located in Seismic Zone 1. Based on the recommended criteria for evaluation of seismic stability of dams, the structure is presumed to present no hazard from earthquakes.

SECTION 7: ASSESSMENT/RECOMMENDATIONS

7.1 ASSESSMENT

a. Safety

Visual observations indicate that Ed Pylkas Dam is in good condition. No conditions were observed that would significantly affect the overall performance of the structure at this time. However, as previously noted, the dam was not inspected under its maximum load condition which would occur when the reservoir is filled during major storms.

The spillway capacity was evaluated according to the recommended procedure and was found to pass the required spillway design flood of full PMF without overflowing the embankment; therefore, the spillway capacity is classified to be adequate.

b. Adequacy of Information

Available information, in conjunction with visual observations, is considered to be sufficient to make a Phase I evaluation.

c. Need for Additional Investigations

No additional investigation is considered to be required at this time.

d. Urgency

It is recommended that the emergency action plan should be implemented within three months from the final issuance of this report and other recommendations should be implemented as soon as possible.

7.2 RECOMMENDATIONS

1. The need for replacing the corroded downstream segment of the primary spillway outlet pipe and relocating the barbed wire fence across the discharge channel of the emergency spillway should be evaluated.

2. An emergency action plan should be developed including a formal warning system to alert the downstream residents in the event of an emergency.

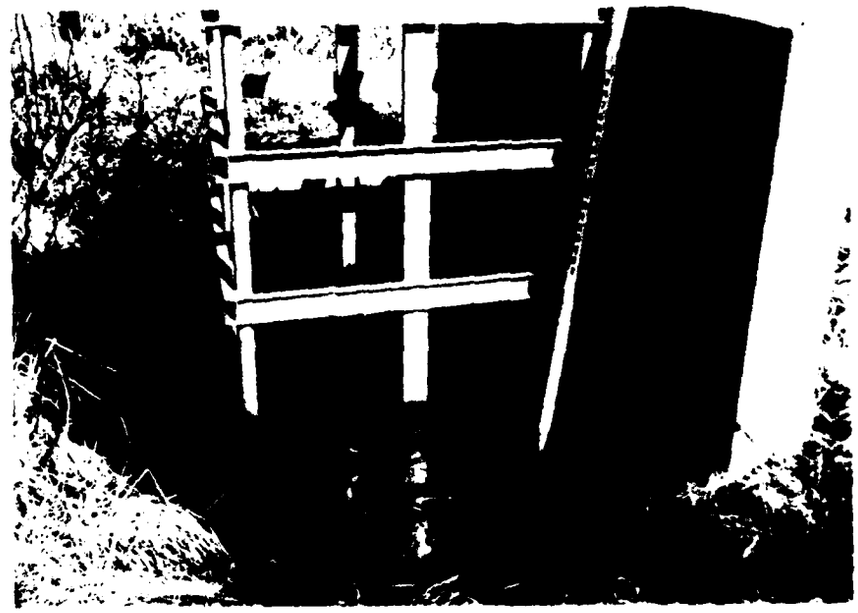
APPENDIX A

PHOTOGRAPHS

PHOTOGRAPH NO. 1
Upstream Slope (looking Northwest)

PHOTOGRAPH NO. 2
Dam Crest (looking Northwest)

PHOTOGRAPH NO. 3
Emergency Spillway Approach Channel (looking downstream)



PHOTOGRAPH NO. 4
Primary Spillway Inlet Structure

PHOTOGRAPH NO. 5
Downstream End of Primary Spillway Discharge Pipe

PHOTOGRAPH NO. 6
A House Immediately Downstream From Dam

PHOTOGRAPH NO. 7
A Farm 0.6 Mile Downstream From Dam

APPENDIX B

VISUAL INSPECTION CHECKLIST

APPENDIX B
VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam Ed Pylkas Dam

Fed. I.D. # N.Y. 355 DEC Dam No. 67-2067

River Basin Susquehanna River Basin

Location: Town Spencer County Tioga

Stream Name Dean Creek

Tributary of Catatonk Creek

Latitude (N) 42° 10.0' Longitude (W) 76° 31.6'

Type of Dam Earth

Hazard Category High

Date(s) of Inspection March 25 and April 30, 1981

Weather Conditions Partly Cloudy, Temp 40's

Reservoir Level at Time of Inspection Normal Pool El. 1265.0(1)
(USGS Datum)

b. Inspection Personnel Lawrence Andersen, P.E.; James Poellot, P.E.; Bilgin Erel, P.E.; Wah-Tak Chan, P.E.; and Arthur Smith

c. Persons Contacted (Including Address & Phone No.)

(1) Mr. Sidney Lincoln, R.D. #1, Box 42, Lockwood, N.Y. 14859
(607) 589-6817

(2) Mr. Gary Page, SCS, Broome County, N.Y.

(1) All elevations interpolated from USGS 7.5-minute Van Etten, New York quadrangle dated 1969.

d. History:

Date Constructed 1955 Date(s) Reconstructed _____

Designer U.S. Department of Agriculture, Soil Conservation Service

Constructed by Unknown

Owner Mr. Sidney Lincoln

2) Embankment

a. Characteristics

(1) Embankment Material Earth

(2) Cutoff Type None

(3) Impervious Core None

(4) Internal Drainage System None

(5) Miscellaneous ---

b. Crest

(1) Vertical Alignment Good. A portion of the embankment about 0.4 foot below design Elevation 1284.8.

(2) Horizontal Alignment Good

(3) Surface Cracks None

(4) Miscellaneous ---

c. Upstream Slope

(1) Slope (Estimate) 3H:1V (as designed) 2.9H:1V (as measured)

(2) Undesirable Growth or Debris, Animal Burrows None

(3) Sloughing, Subsidence or Depressions None

(4) Slope Protection *Vegetated Slope*

(5) Surface Cracks or Movement at Toe None

d. Downstream Slope

(1) Slope (Estimate) 2H:1V (as designed)

1.8H:1V (as measured)

(2) Undesirable Growth or Debris, Animal Burrows None

(3) Sloughing, Subsidence or Depressions None

(4) Surface Cracks or Movement at Toe None

(5) Seepage None

(6) External Drainage System (Ditches, Trenches, Blanket)

None

(7) Condition Around Outlet Structure Good

(8) Seepage Beyond Toe None

e. Abutments - Embankment Contact

No problems observed.

(1) Erosion at Contact None

(2) Seepage Along Contact None

3) Drainage System

a. Description of System The dam has no internal drainage system.

b. Condition of System N/A

c. Discharge from Drainage System N/A

4) Instrumentation (Monumentation/Surveys, Observation Wells, Weirs, Piezometers, Etc.)

None

5) Reservoir

a. Slopes Moderate to steep, no problems observed.

b. Sedimentation Unknown, no noticeable problems.

c. Unusual Conditions Which Affect Dam None

6) Area Downstream of Dam

a. Downstream Hazard (No. of Homes, Highways, etc.) Four homes in first mile downstream.

b. Seepage, Unusual Growth None

c. Evidence of Movement Beyond Toe of Dam None

d. Condition of Downstream Channel Good

7) Spillway(s) (Including Discharge Conveyance Channel)

In good condition.

a. General Service Spillway: 3-foot-square concrete riser discharging into a 24-inch outlet pipe.
Auxiliary Spillway: Vegetated earth channel on left abutment.

b. Condition of Service Spillway Good

c. Condition of Auxiliary Spillway Good

d. Condition of Discharge Conveyance Channel Good

8) Reservoir Drain

Type: Pipe X Conduit - Other -

Material: Concrete ___ Metal ___ Other Corrugated Metal Pipe

Size: 6 inches Length Approx. 20 ft. (upstream toe to inlet)

Invert Elevations: Entrance Unknown Exit Unknown

Physical Condition (Describe): Unobservable X

Material:

Joints: *Alignment*

Structural Integrity:

Hydraulic Capability: Upstream end plugged with concrete as required by design.

Means of Control: Gate ___ Valve ___ Uncontrolled ___

Operation: Operable ___ Inoperable X Other ___

Present Condition (Describe): See note above.

9) Structural

a. Concrete Surfaces The only concrete structure is the principal spillway drop inlet structure. Concrete is in good condition.

b. Structural Cracking None

c. Movement - Horizontal & Vertical Alignment (Settlement)

N/A

d. Junctions with Abutments or Embankments

N/A

e. Drains - Foundation, Joint, Face

N/A

f. Water Passages, Conduits, Sluices

N/A

g. Seepage or Leakage

N/A

h. Joints - Construction, etc. N/A

i. Foundation N/A

j. Abutments N/A

k. Control Gates N/A

l. Approach & Outlet Channels N/A

m. Energy Dissipators (Plunge Pool, etc.) Good condition.

n. Intake Structures Good

o. Stability N/A

p. Miscellaneous ---

10) Appurtenant Structures (Power House, Lock, Gatehouse, Other)

a. Description and Condition None

APPENDIX C

ENGINEERING DATA CHECKLIST

APPENDIX C
ENGINEERING DATA CHECKLIST
NAME OF DAM: ED PYLKAS

AREA-CAPACITY DATA:

	Elevation (feet)	Surface Area (acres)	Storage Capacity (acre-feet)
1) Top of Dam	1284.4(1)	24.2	206.0
2) Design High Water(2) (Max. Design Pool)	1284.2	23.6	194.0
3) Auxiliary Spillway Crest	1279.9	14.7	125.0
4) Pool Level with Flashboards			
5) Service Spillway Crest	1265.0	2.3	12.0

(1)Measured low spot.
(2)PMF.

DISCHARGES

	Discharge (cfs)
1) Average Daily	1 ±
2) Auxiliary Spillway at Maximum High Water (Top of Dam)	2060
3) Auxiliary Spillway at Design High Water (Full PMF)	1870
4) Principal Spillway at Auxiliary Spillway Crest Elevation	65
5) Low Level Outlet	
6) Total of all facilities at Maximum High Water	2125
7) Maximum Known Flood	Unknown
8) At Time of Inspection	Approx. 1 ±

DAM: Ed Pylkas Dam

CREST ELEVATION: 1284.4 (measured low spot)

Type: Earth

Width: 12 feet Length: 420 feet

Spillover Concrete drop inlet and vegetated earth channel

Location Drop inlet: Center of dam; Earth channel: Left abutment

SPILLWAY:

SERVICE		AUXILIARY
1265.0	Elevation	1279.9
Concrete Drop Inlet	Type	Vegetated Earth Channel
3 feet	Width	54 feet
	Type of Control	
Uncontrolled	Uncontrolled	Uncontrolled
	Controlled:	
NA	Type (Flashboards; gate)	NA
NA	Number	NA
NA	Size/Length	54 feet long
	Invert Material	Vegetated Earth
	Anticipated Length of operating service	Unknown
160 feet	Chute Length	NA
1 ± foot	Height Between Spillway Crest and Approach Channel Invert (Weir Flow)	8 ± feet

Hydrometerological Gages:

Type: None

Location: N/A

Records:

Date - N/A

Max. Reading - N/A

FLOODWATER CONTROL SYSTEM:

Warning System: None

Method of Controlled Releases (mechanisms):

None

DRAINAGE AREA: 0.7 square mile

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: Wooded/frameland

Terrain - Relief: Moderate

Surface - Soil: Low permeability soil

Runoff Potential (existing or planned extensive alterations to existing surface or subsurface conditions)

High runoff potential due to moderate slope and low infiltration rate.

Potential Sedimentation problem areas (natural or man-made; present or future)

None observed.

Potential Backwater problem areas for levels at maximum storage capacity including surcharge storage:

None observed.

Dikes - Floodwalls (overflow and nonoverflow) - Low reaches along the reservoir perimeter:

Location: None

Elevation:

Reservoir:

Length at Maximum Pool 800 ± feet

Length of Shoreline at Spillway Crest 1,000 ± feet

APPENDIX D

HYDROLOGY AND HYDRAULIC ANALYSES

HYDROLOGY AND HYDRAULIC ANALYSIS
DATA BASE

NAME OF DAM: Ed Pylkas Dam (N.Y. DEC 67-2067)

PROBABLE MAXIMUM PRECIPITATION (PMP) = 22.2 INCHES/24 HOURS(1)

STATION	1	2	3	4	5
Station Description	Ed Pylkas Lake	Ed Pylkas Dam			
Drainage Area (square miles)	0.69	-			
Cumulative Drainage Area (square miles)	0.69	0.69			
Adjustment of PMF for Drainage Area (%)	95%(2)				
6 Hours	117	-			
12 Hours	127	-			
24 Hours	136	-			
48 Hours	142	-			
72 Hours	145	-			
Snyder Hydrograph Parameters					
C_p/C_t(3)	0.62/1.5	-			
L (miles)(4)	1.08	-			
L_{ca} (miles)(4)	0.42	-			
$t_p = C_t(L \cdot L_{ca})^{0.3}$ (hours)	1.18	-			
Spillway Data					
Crest Length (ft)	-	See spillway capacity rating calculations			
Freeboard (ft)	-				
Discharge Coefficient	-				
Exponent	-				

(1) Hydrometeorological Report 33 (Figure 1), U.S. Army, Corps of Engineers, 1956.
(2) Hydrometeorological Report 40, U. S. Weather Bureau, 1965.
(3) Snyder's Coefficients (C_p and C_t) as recommended by Corps of Engineers, Baltimore District, for Susquehanna River Basin.
(4) L = Length of longest water course from outlet to basin divide.
L_{ca} = Length of water course from outlet to point opposite the centroid of drainage area.

STORAGE VS. ELEVATION

ELEVATION	ΔH, FEET	AREA (acres)(1)	ΔVOLUME (acre-feet)(2)	STORAGE (acre-feet)
1248.9		0		0
	16.1		12.3	
1265.0		2.3		12.3
	15.0		114.1	
1280.0		14.7		126.4
	20.0		678.5	
1300.0		57.9		804.9

(1) Planimetered from USGS maps.
(2) $\Delta Volume = \Delta H/3 \ (A_1 + A_2 + \sqrt{A_1 A_2})$.

```
**********
FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION      JULY 1978
  LAST MODIFICATION  01 APR 80
**********
    1                A1       SNYDER UNIT HYDROGRAPH, SPILLWAY AND DAM OVERTOPPING ANALYSES
    2                A2       ED PYLKAS DAM,(NY 67-2067),TIOGA COUNTY,N.Y. PROJECT NO. 80-778-C1
    3                A3       FOR 20%,30%,40%,50%,60%,70%,80%,90%,AND 100% PROBABLE MAXIMUM FLOOD(PMF)
    4                B     300        0       15        0        0        0        0        0       -4        3
    5                B1      5
    6                J       1        9        1
    7                J1   0.20     0.30     0.40     0.50     0.60     0.70     0.80     0.90     1.00
    8                K       0        1                                          1
    9                K1       CALCULATION OF SNYDER INFLOW HYDROGRAPH TO ED PYLKAS DAM, (N.Y. 67-2068)
   10                M       1        1     0.69                0.69                                1
   11                P                21.1      117      127      136      142      145
   12                T                                                           1.0     0.05           0.0051
   13                U    1.18     0.62
   14                X    -1.5    -0.05      2.0
   15                K       1        2                                          1
   16                K1       ROUTING FLOW THROUGH ED PYLKAS DAM, (N.Y. 67-2067)
   17                Y                                          1        1
   18                Y1      1                                                -1265.0       -1
   19                Y41265.0  1266.4   1271.0   1275.0   1279.9   1280.5   1281.0   1281.5   1282.0   1282.5
   20                Y41283.0  1283.5   1284.0   1284.5   1285.0   1286.0   1287.0   1288.0   1289.0   1290.0
   21                YS    0.0     50.0     55.0     60.0     65.0    146.3    271.5    435.8    635.4    868.6
   22                YS1134.6  1432.8   1763.1   2125.7   2520.6   3408.4   4429.2   5585.9   6881.8   8320.5
   23                $A    0.0      2.3     14.7     57.9
   24                $E1248.9  1265.0   1280.0   1300.0
   25                $$1279.9
   26                $Q1284.4     2.65      1.5    341.0
   27                $L   25.0     60.0    110.0    210.0    260.0    310.0    360.0    410.0
   28                $V1284.4  1284.8   1285.3   1285.6   1286.0   1286.1   1268.3   1286.5
   29                K      99
```

COMPUTER INPUT OVERTOPPING ANALYSIS

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO FLOWS								
				RATIO 1 .20	RATIO 2 .50	RATIO 3 .40	RATIO 4 .50	RATIO 5 .60	RATIO 6 .70	RATIO 7 .80	RATIO 8 .90	RATIO 9 1.00
HYDROGRAPH AT	1	.69 (1.79)	1	449. (12.72)	674. (19.09)	899. (25.45)	1123. (31.81)	1348. (38.17)	1573. (44.53)	1797. (50.90)	2022. (57.26)	2247. (63.62)
ROUTED TO	2	.69 (1.79)	1	65. (1.83)	362. (10.26)	639. (18.11)	917. (25.97)	1179. (33.37)	1425. (40.36)	1656. (46.88)	1876. (53.12)	2091. (59.22)

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1265.00	1279.90	1284.40
STORAGE	12.	125.	204.
OUTFLOW	0.	65.	2053.

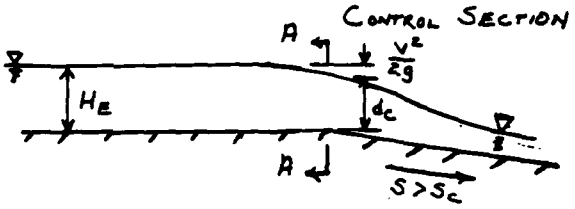
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.20	1279.43	0.00	118.	65.	0.00	44.25	0.00
.30	1281.28	0.00	146.	362.	0.00	42.75	0.00
.40	1282.01	0.00	159.	639.	0.00	42.00	0.00
.50	1282.59	0.00	170.	917.	0.00	41.50	0.00
.60	1283.07	0.00	179.	1179.	0.00	41.25	0.00
.70	1283.49	0.00	187.	1425.	0.00	41.25	0.00
.80	1283.84	0.00	194.	1656.	0.00	41.25	0.00
.90	1284.16	0.00	201.	1876.	0.00	41.25	0.00
1.00	1284.45	.05	207.	2091.	.50	41.25	0.00

D'APPOLONIA
CONSULTING ENGINEERS, INC.

By DMB Date 5/2/81 Subject E.O. PYLKAS DAM Sheet No. 1 of 1
Chkd. By WTC Date 5/7/81 NY 67 - 2067 Proj. No. 80-778-01

SPILLWAY CAPACITY

REF. 1: "DESIGN OF SMALL DAMS", 2ND ED., PG 553

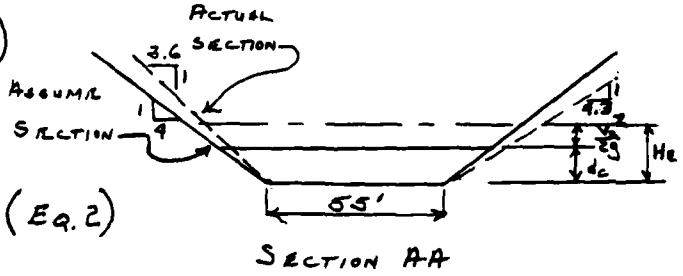


$$V_c = \sqrt{\left(\frac{b + z d_c}{b + 2z d_c}\right) d_c g} \qquad (EQ. 1)$$

$$H_E = d_c + \frac{V_c^2}{2g} = d_c + \left(\frac{b + z d_c}{b + 2z d_c}\right)\left(d_c g\right)\left(\frac{1}{2g}\right)$$

$$= \left(\frac{3b + 5z d_c}{2b + 4z d_c}\right) d_c$$

$$d_c = \frac{-(3b + 4H_E z) + \sqrt{(3b + 4H_E z)^2 + (4H_E)(10b)}}{10z} \qquad (EQ. 2)$$



SECTION AA

$$A_c = (z d_c + b) d_c \qquad (EQ. 3)$$

$$Q_c = A_c V_c \qquad (EQ. 4)$$

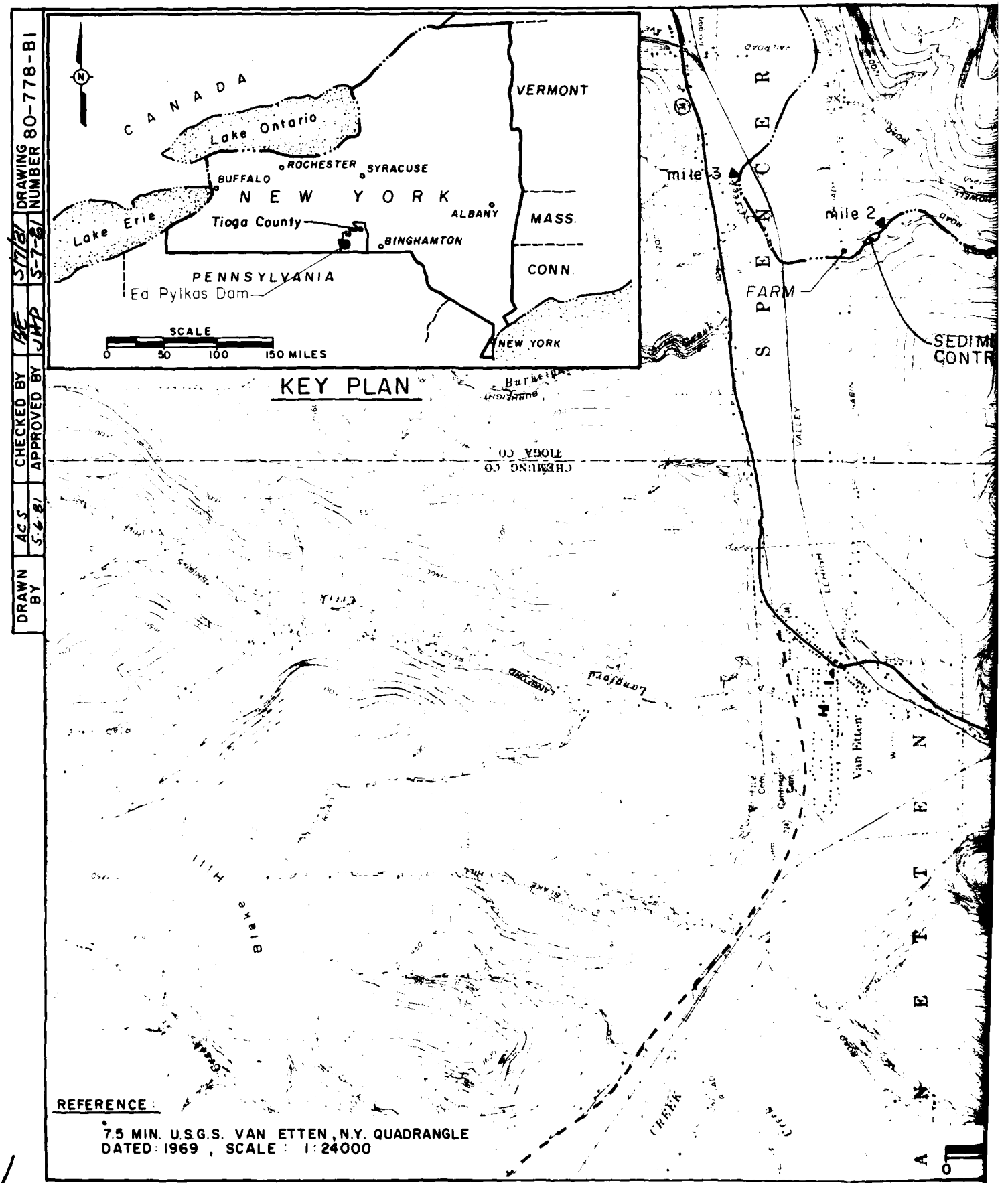
REF. 2; LOW LEVEL OUTLET: EL. 1265.0, Q_L = 0.0 CFS; EL. 1266.4, Q_L = 50 CFS; EL 1271.0, Q_L = 55.0 CFS; EL 1275.0, Q_L = 60.0 CFS.

LAKE ELEVATION (FT)	H_E (FT)	EQ. 2 d_c (FT)	EQ. 3 A_c (FT^2)	EQ. 1 V_c (FPS)	EQ. 4 Q_c, SPILLWAY CAPACITY (CFS)	REF. 2 Q_L (CFS)	$Q_c + Q_L$ Q_T (CFS)
1279.9	0.0	0	0	0	0	65.0	65.0
1280.5	0.6	0.4	22.9	3.6	81.3	65.0	146.3
1281.0	1.1	0.7	43.2	4.8	206.5	65.0	271.5
1281.5	1.6	1.1	64.8	5.7	370.8	65.0	435.8
1282.0	2.1	1.4	87.6	6.5	570.4	65.0	635.4
1282.5	2.6	1.8	111.6	7.2	803.6	65.0	868.6
1283.0	3.1	2.2	136.9	7.8	1069.6	65.0	1134.6
1283.5	3.6	2.5	163.4	8.4	1367.8	65.0	1432.8
1284.0	4.1	2.9	191.2	8.9	1698.1	65.0	1763.1
1284.5 (TOP OF DAM EL. 1284.4)	4.6	3.2	220.2	9.4	2060.7	65.0	2125.7
1285.0	5.1	3.6	250.4	9.8	2455.6	65.0	2520.6
1286.0	6.1	4.3	319.7	10.6	3343.4	65.0	3408.4
1287.0	7.1	5.1	384.0	11.4	4364.2	65.0	4429.2
1288.0	8.1	5.8	458.4	12.0	5520.9	65.0	5585.9
1289.0	9.1	6.6	537.9	12.7	6816.8	65.0	6881.8
1290.0	10.1	7.4	622.5	13.3	8255.5	65.0	8320.5

(2) SCS DRAWING, "DEAN CREEK, PLYKAS DAM, FLOOD ROUTING - MAX. FLOOD", 4/29/55 (PLATE

APPENDIX E

PLATES



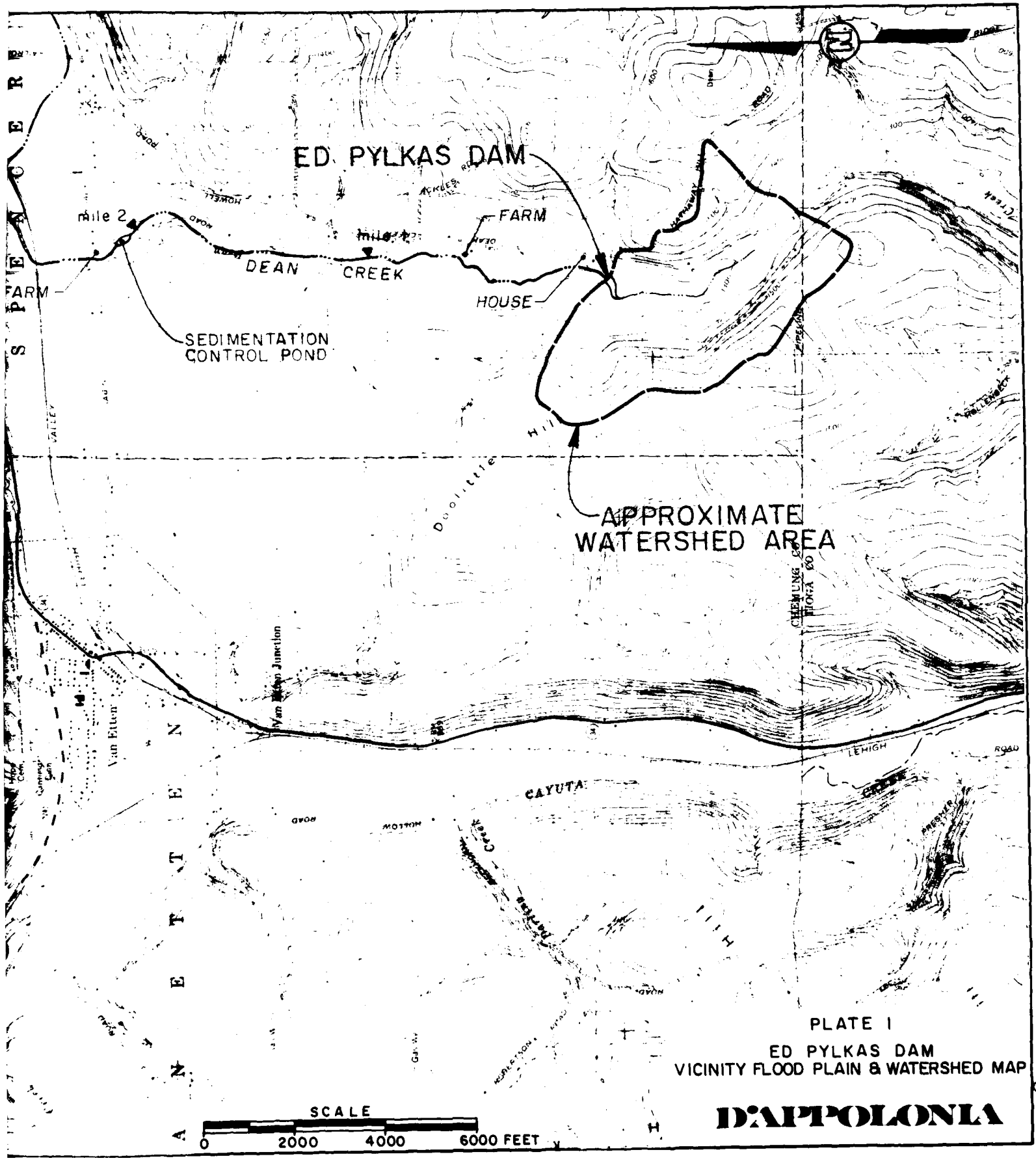
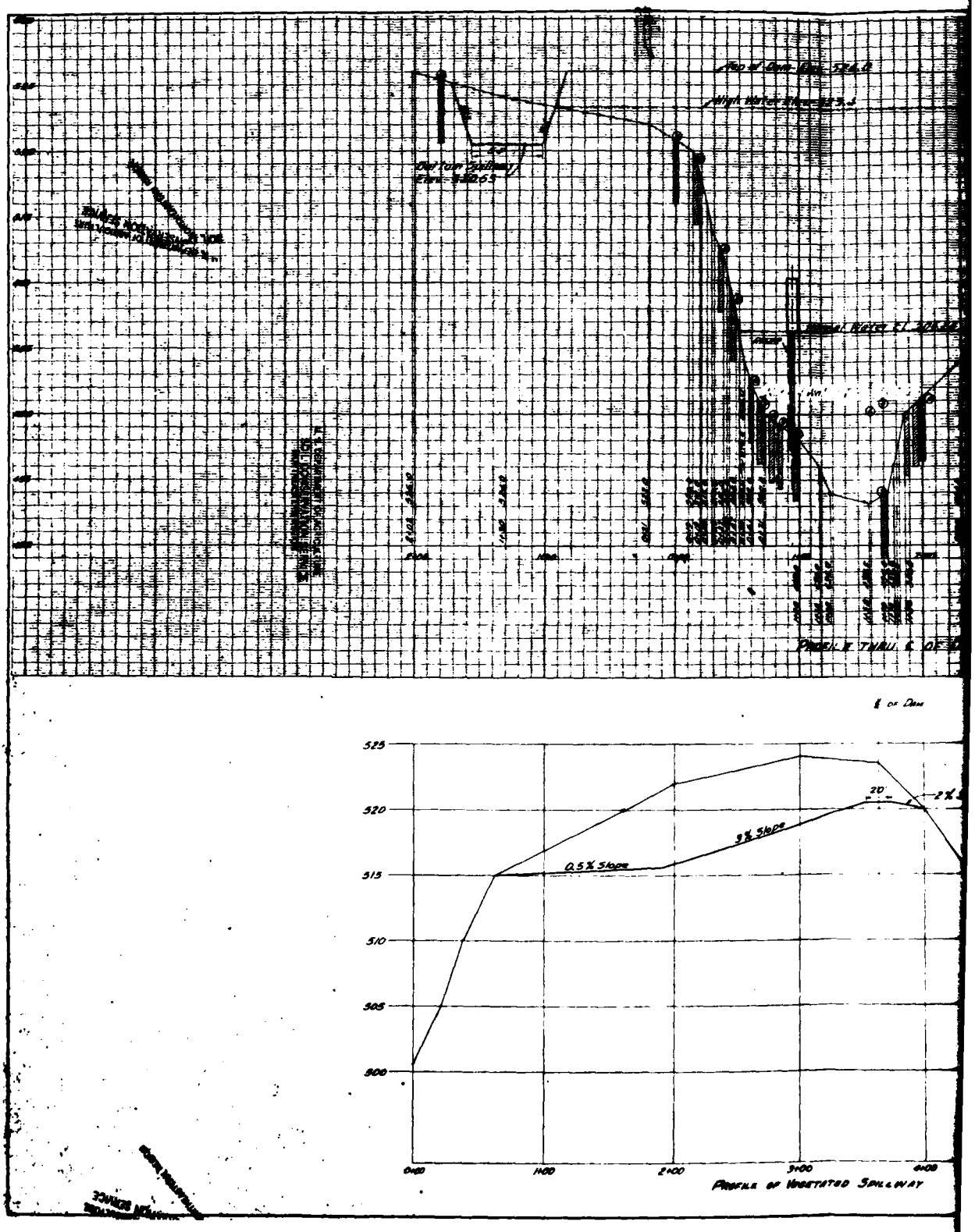


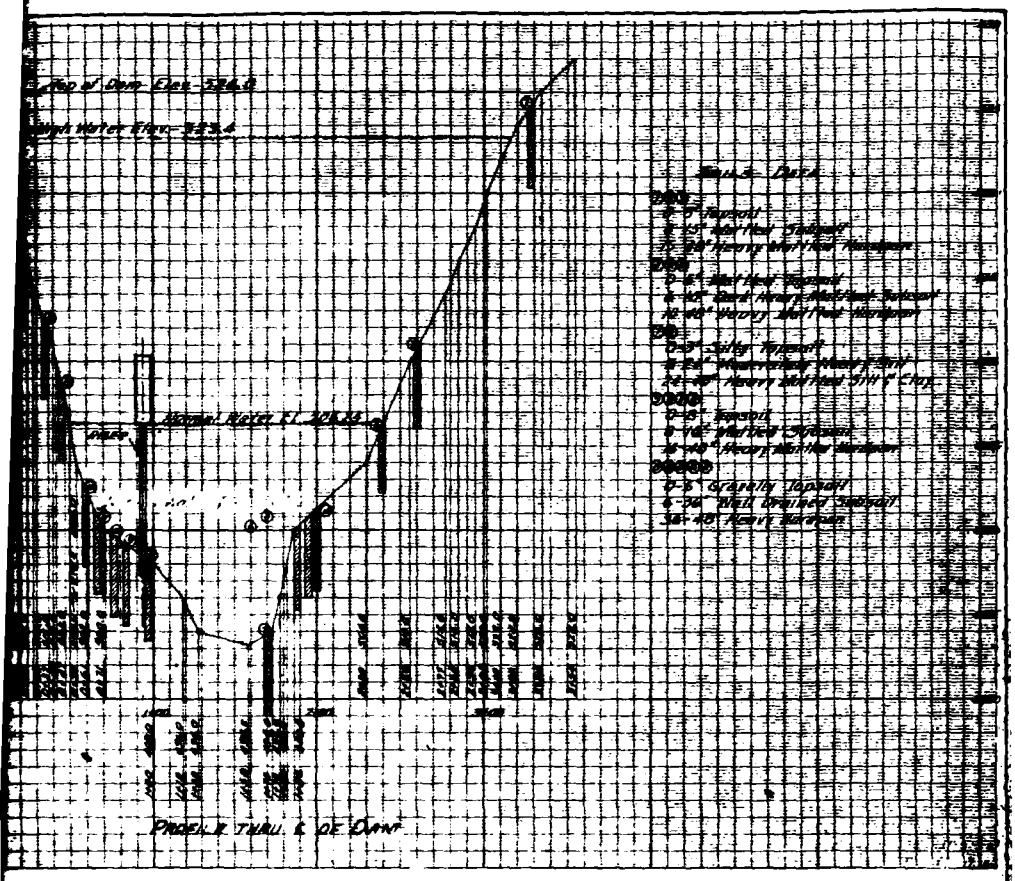
PLATE I

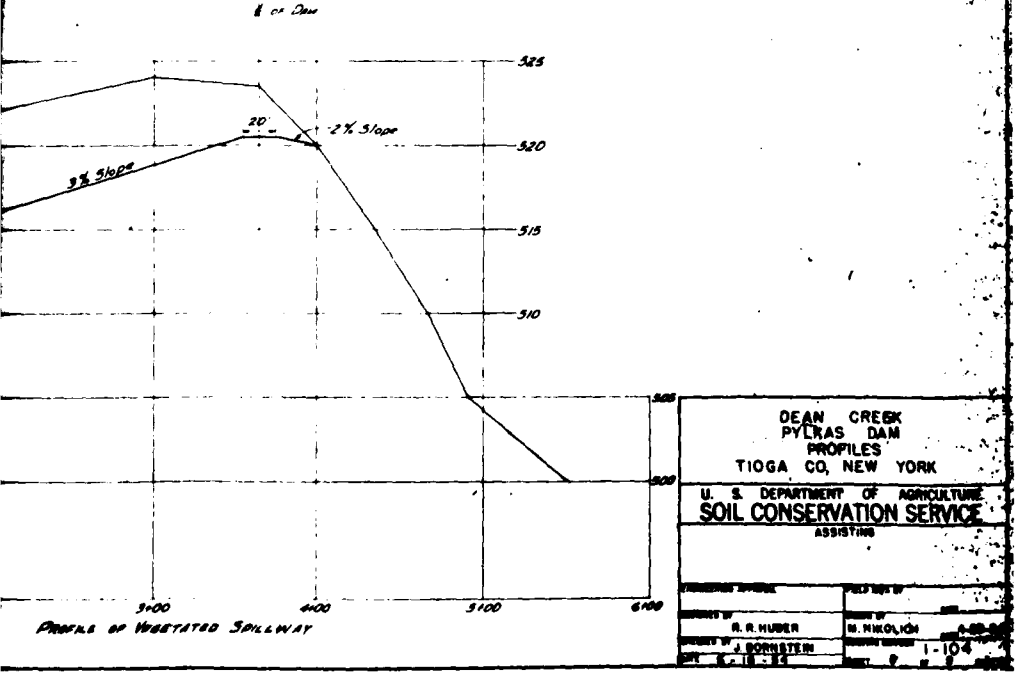
ED PYLKAS DAM
VICINITY FLOOD PLAIN & WATERSHED MAP

DAPPOLONIA

DRAWN BY	ACS	CHECKED BY	RJE	5/7/81	DRAWING NUMBER 80-778-B2
	6.6.81	APPROVED BY	JHP	S-7-81	







DEAN CREEK
PYLRAS DAM
PROFILES
TIOGA CO, NEW YORK

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ASSISTING

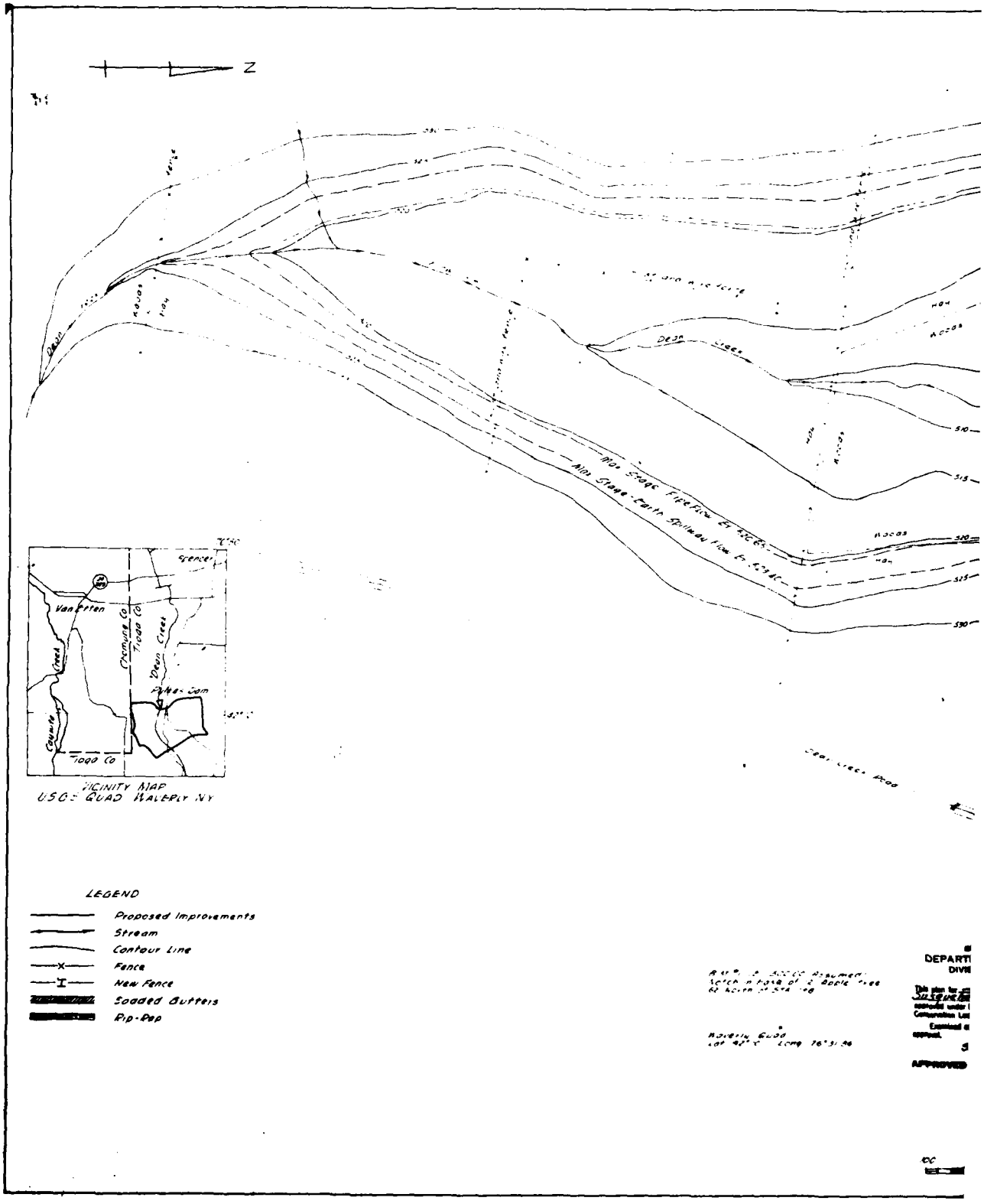
DESIGNED BY R. R. HUBER	DRAWN BY M. NIKOLICH
TRACED BY J. BORNSTEIN	DRAWING NUMBER 1-104
DATE 5-18-54	SHEET 2 OF 2 SHEETS

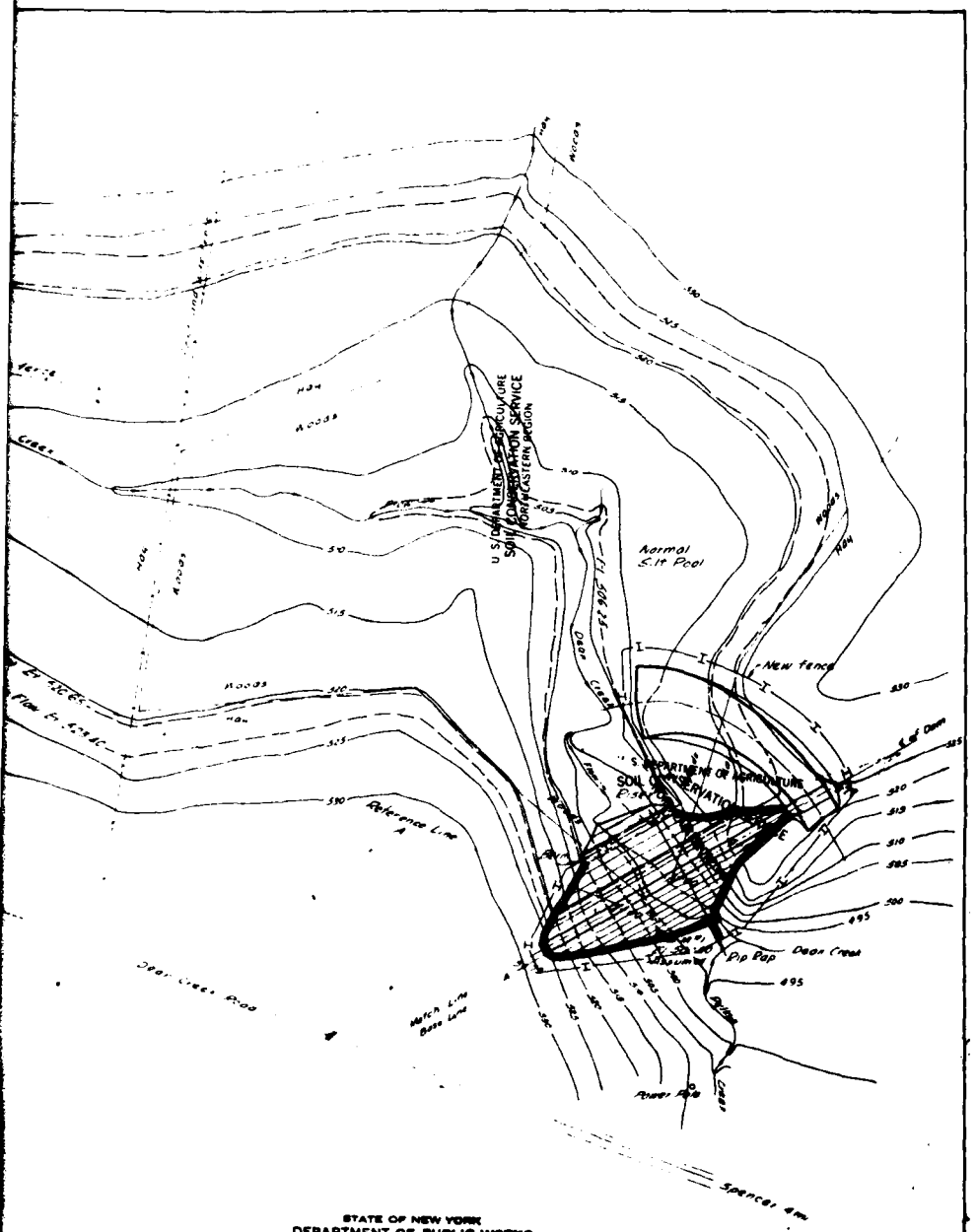
2

PLATE 2

D'APPOLONIA

DRAWN BY	ACS	CHECKED BY	JLE	5/2/87	DRAWING NUMBER 80-778-B3
	5-6-87	APPROVED BY	JHD	S-2-87	





STATE OF NEW YORK
DEPARTMENT OF PUBLIC WORKS
DIVISION OF CONSTRUCTION
ALBANY, N. Y. May 28, 1954

This plan for Susquehanna River protecting dam No. 67-2067 is hereby approved under the provisions of Section 948 of the Conservation Law

Endorsed and recommended to the Chief Engineer for approval.

Senior Assistant Civil Engineer

APPROVED
CHIEF ENGINEER
Department of Public Works
By

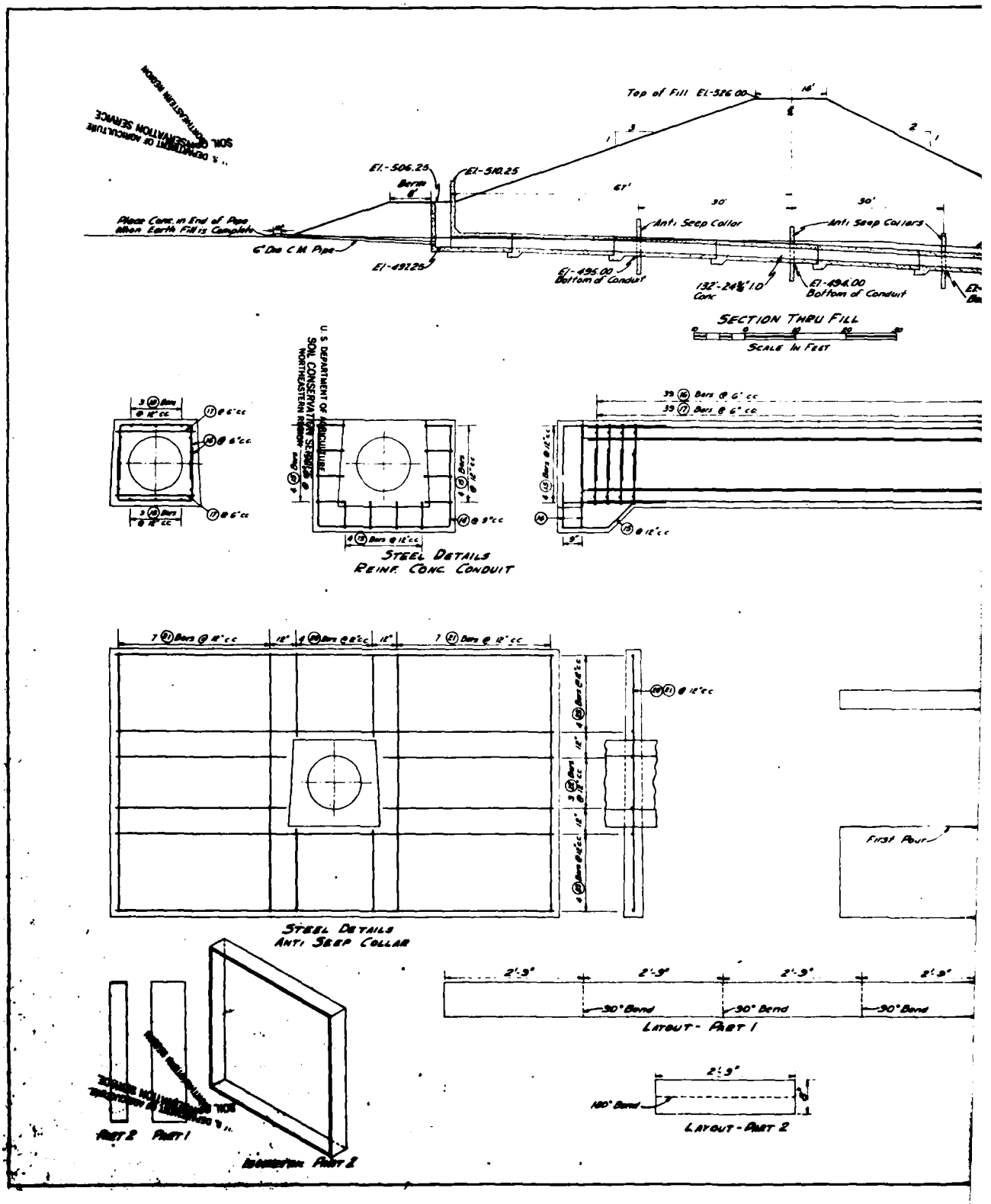
100 0 100 200 300
Scale in Feet

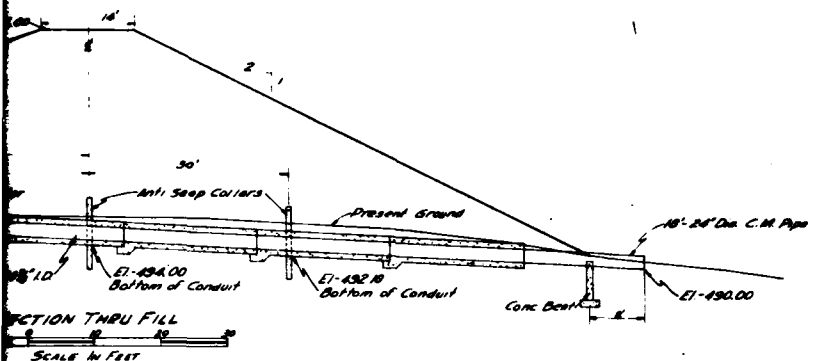
DEAN CREEK PYLKAS DAM DAM & POND TIOGA · CO. NEW YORK	
ASSISTING Tioga County Soil Conservation District New York	
ENGINEERING APPROVAL	FIELD DATA BY DATE
DESIGNED BY R.R. HIBER	DRAWN BY DATE 8-17-54
CHECKED BY J. BORNSTEIN	DRAWING No 1-104
DATE MAY 4, 1954	SHEET 1 OF 9

PLATE 3 2

D'APPOLONIA

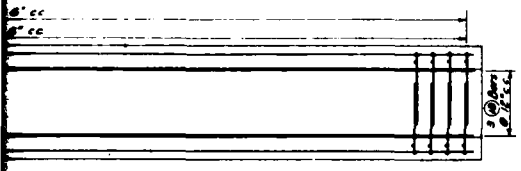
DRAWN BY	AGS	CHECKED BY	JE	SIZE	D
	5-6-81	APPROVED BY	JMD	NUMBER	80-778-B4

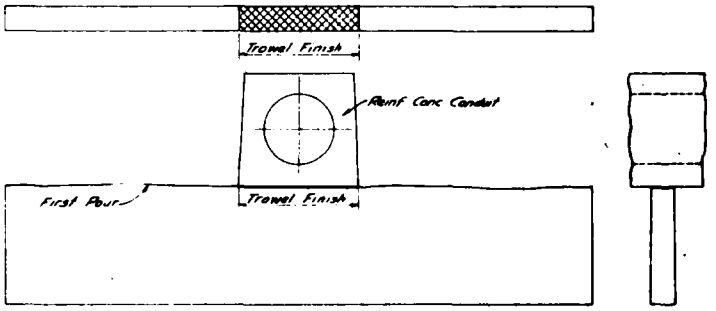




SECTION THRU FILL

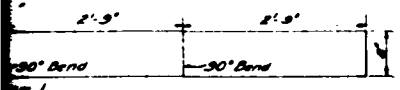
SCALE IN FEET





ANTI-SEEP COLLAR
SHOWING FIRST POUR - TROWEL FINISH SURFACE

SCALE IN FEET



PART 1

PART 2

DEAN CREEK
PYLKAS DAM
STEEL DETAILS
TIOGA CO, NEW YORK

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

ASSISTING

DESIGNED BY R. R. HUBER
DRAWN BY J. GORNSTEIN
CHECKED BY
TRACED BY
DATE 6-18-64

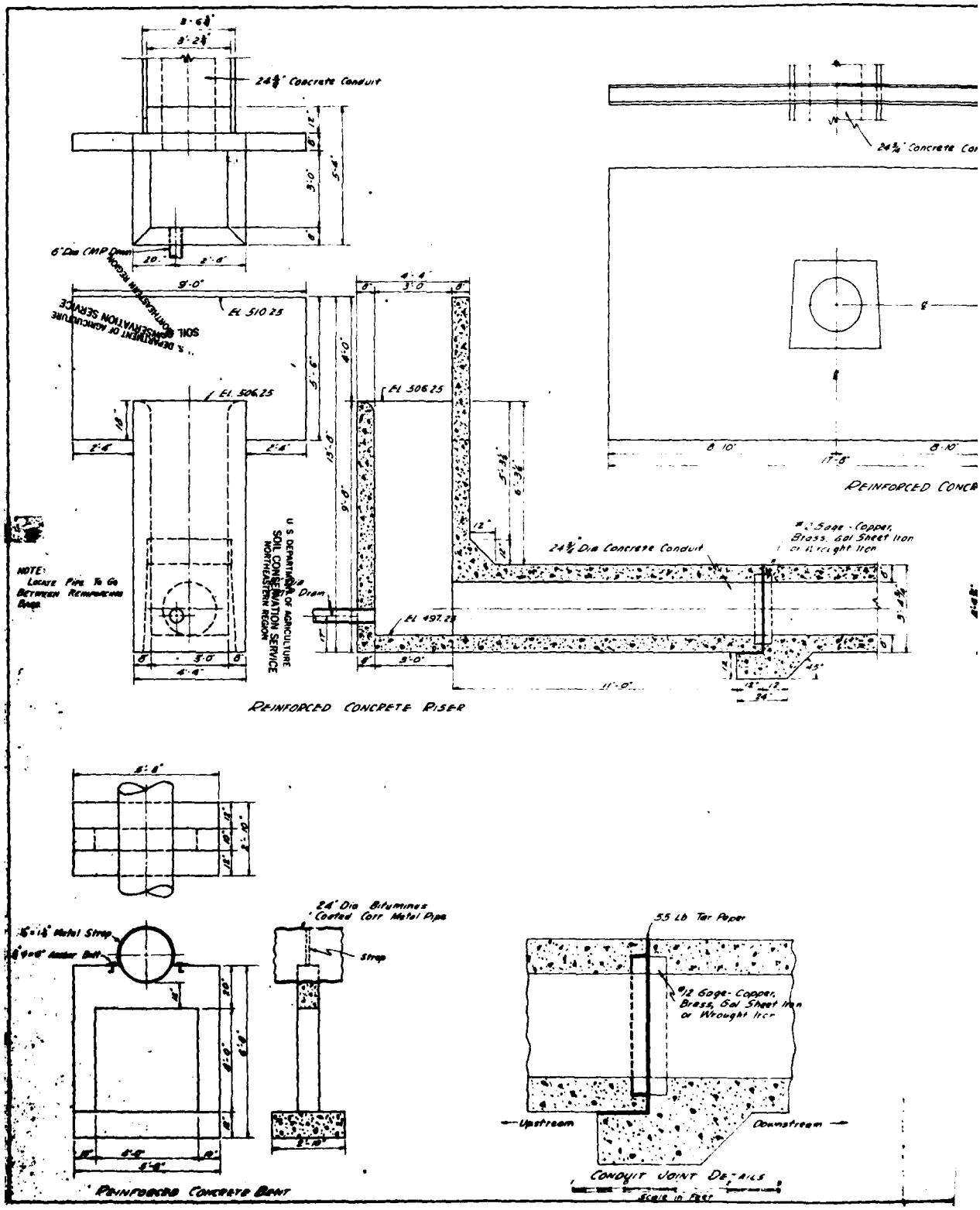
1-194

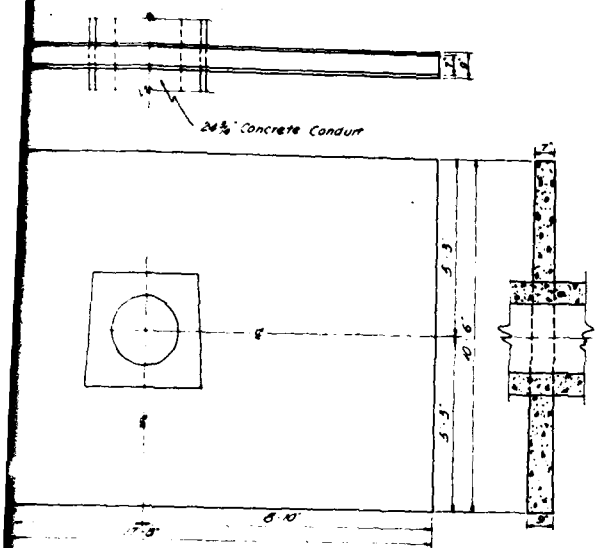
PLATE 4

2

D'APPOLONIA

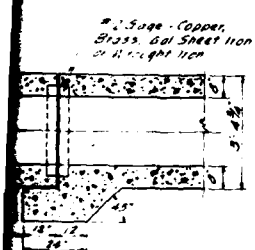
DRAWN BY	ACS	CHECKED BY	RJE	5/9/81	DRAWING NUMBER 80-778-B5
	5-6-81	APPROVED BY	JHD	5-7-81	

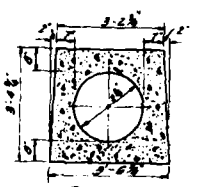




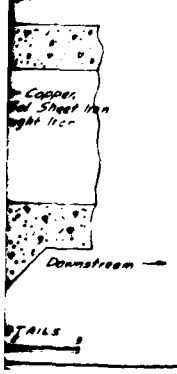
REINFORCED CONCRETE ANTI-SEEP COLLARS

NOTE
SEE SHEET 4 FOR PAVING INSTRUCTION AND GRADE





REINFORCED CONCRETE CONDUIT



DETAILS

Scale in Feet

DEAN CREEK
PYLKAS DAM
STRUCTURE DIMENSIONS
TIOGA CO., NEW YORK

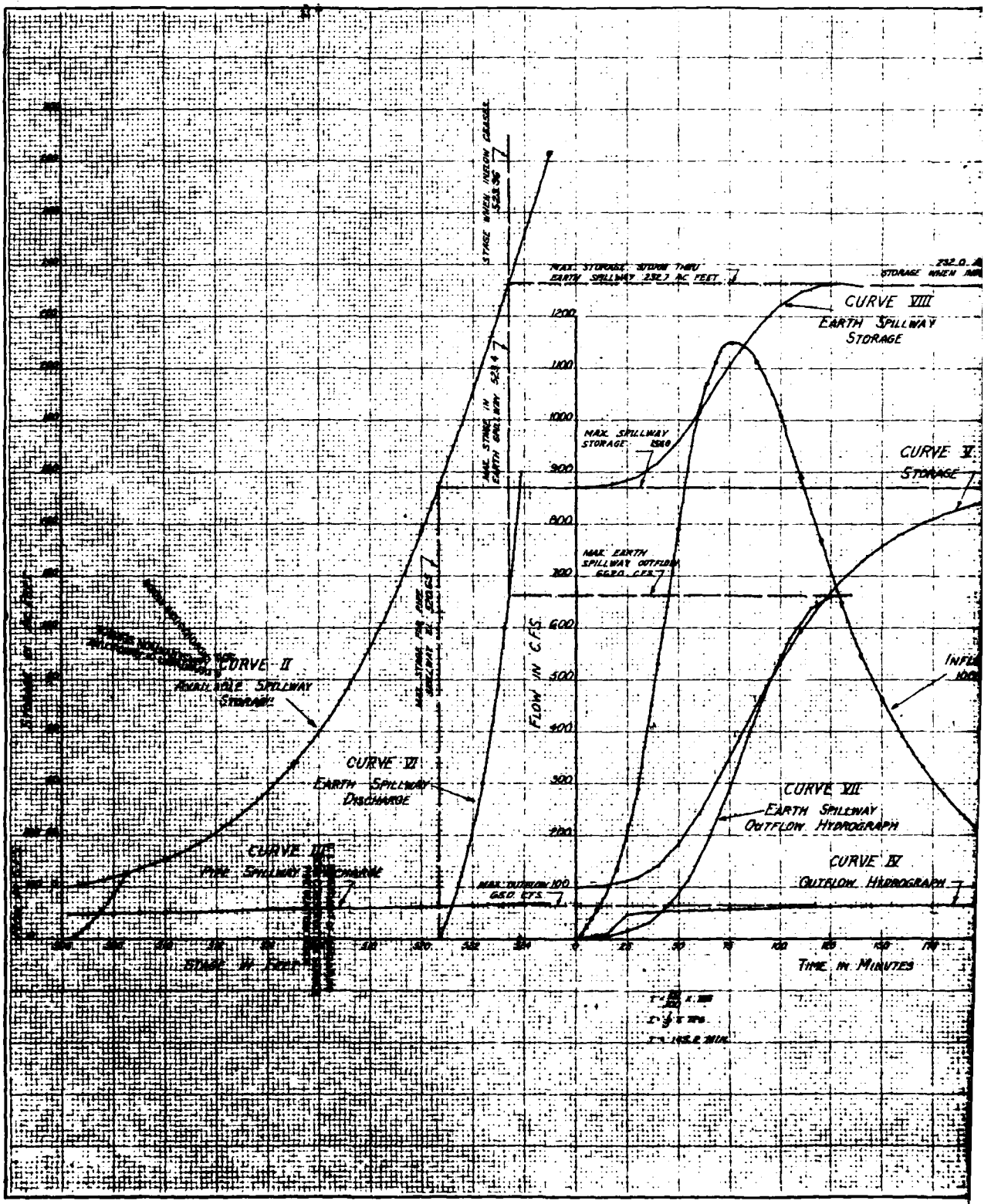
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ASSISTING

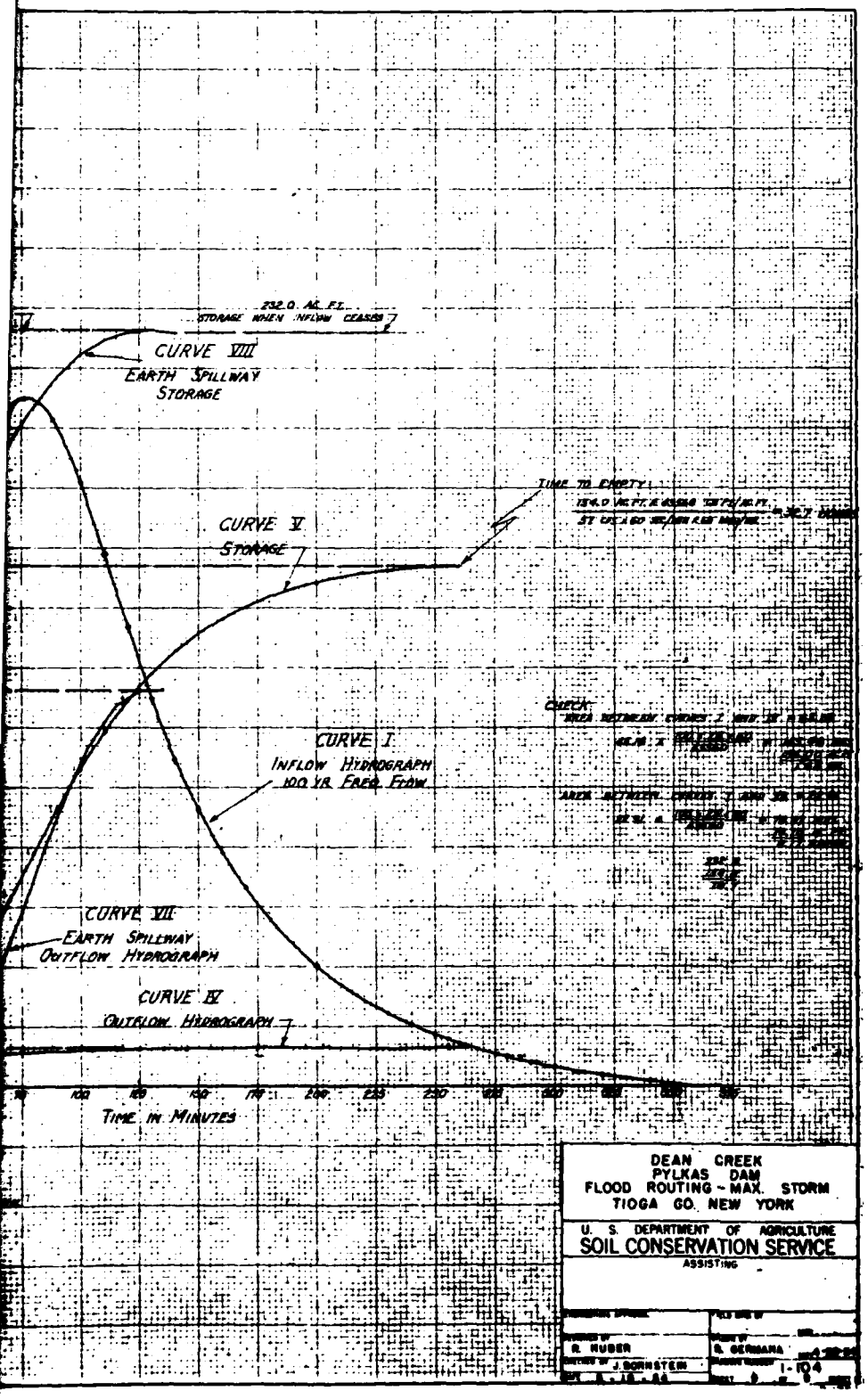
DRAWN BY R. R. HUBER	TRACED BY A.S. RADDOLD
CHECKED BY L. DOMENICO	DRAWING NUMBER 1-104
DATE 8-12-58	SHEET 3 OF 5 SHEETS

PLATE 5 2

D'APPOLONIA

DRAWN BY	ACS	CHECKED BY		DRAWING NUMBER 80-778-B6
	5-6-81	APPROVED BY	JHP 5-7-81	





DEAN CREEK
PYLKAS DAM
FLOOD ROUTING - MAX. STORM
TIOGA CO. NEW YORK

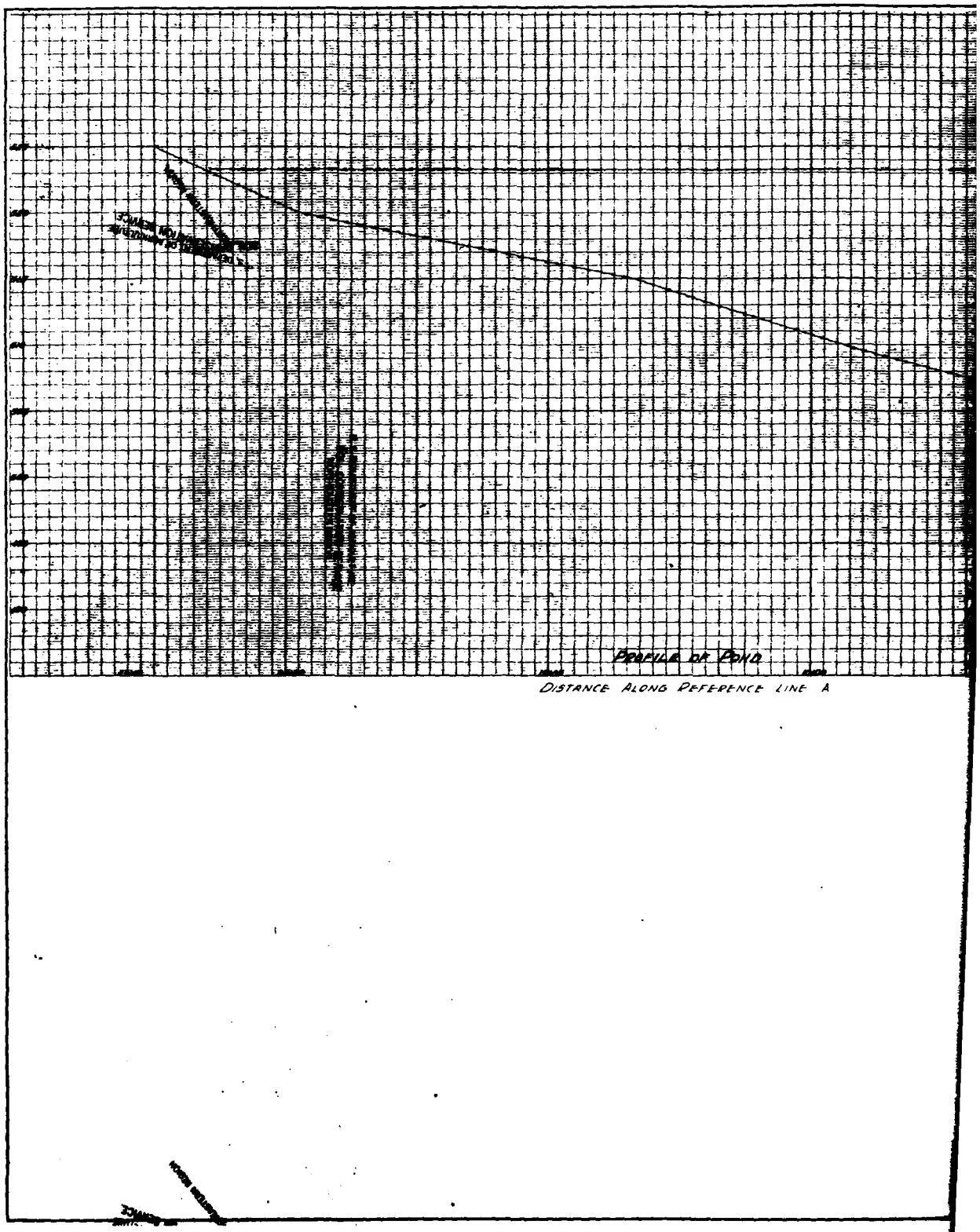
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ASSISTING

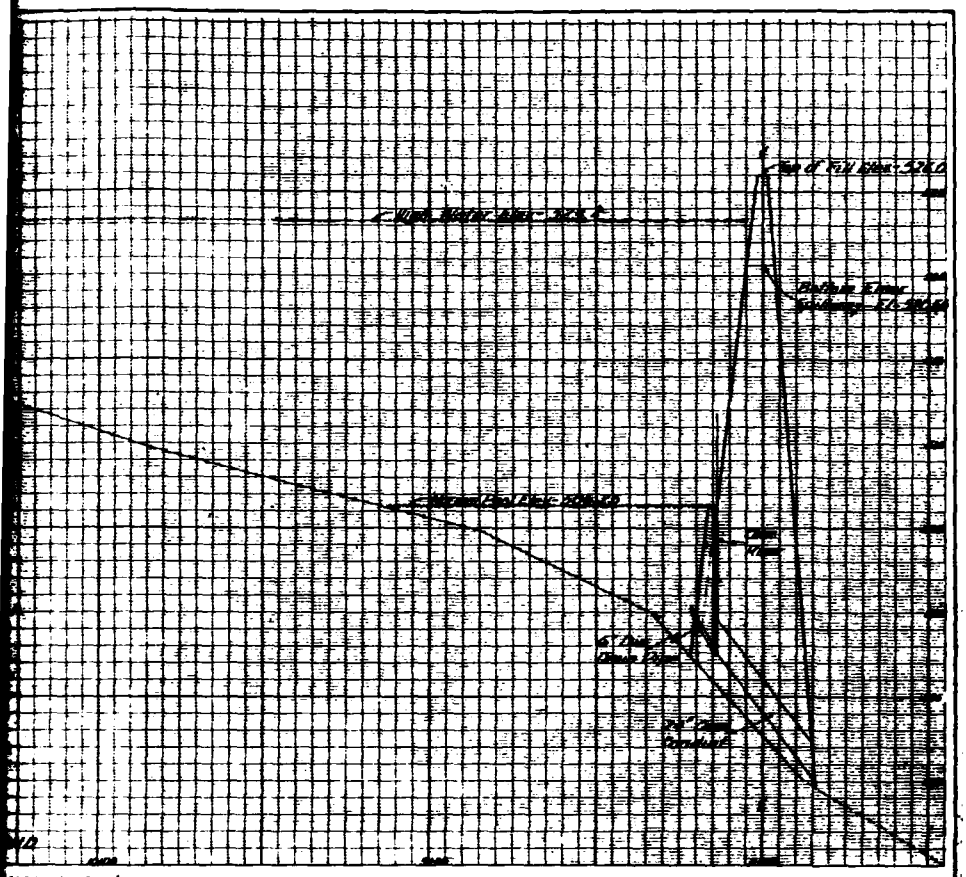
R. HUBER
J. SORNSTEM
S. GERMARA
1-104

PLATE 6 2

D'APPOLONIA

DRAWN BY	ACS	CHECKED BY	JE	5/7/81	DRAWING NUMBER 80-778-B7
	5.6.81	APPROVED BY	JHD	5-7-81	





NCE LINE A

DEAN CREEK
PYLKAS DAM
PROFILE
TIOGA CO. NEW YORK

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ASSISTING

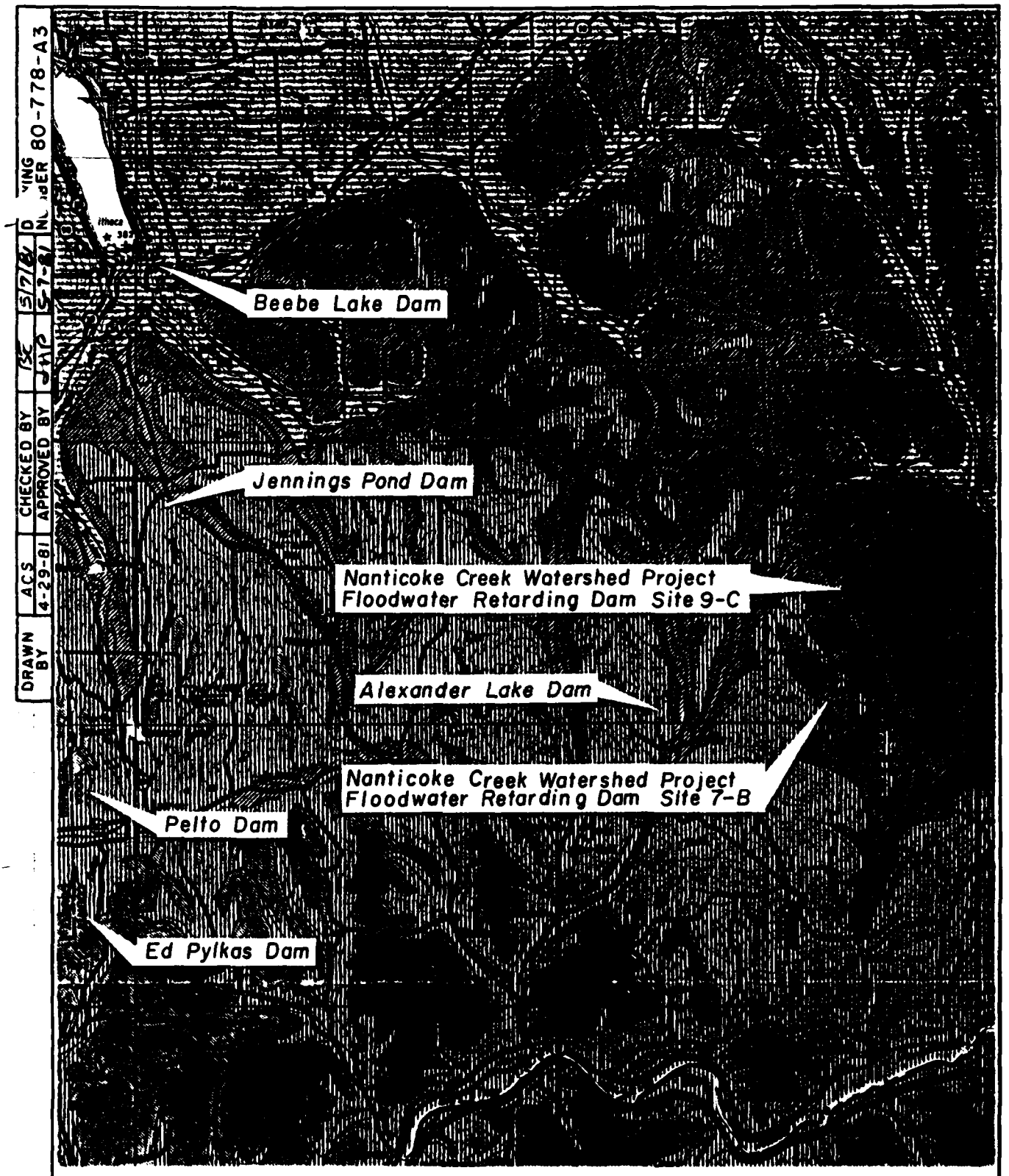
R. R. HUBER	B. SERRIANA 8-17-56
J. DORNSTEIN	1-104
8-16-56	7 of 8

PLATE 7 2

D'APPOLONIA

APPENDIX F

GEOLOGY MAP



SCALE

0 2 4 6 8 10 miles

GEOLOGY MAP

REFERENCE

GEOLOGIC MAP OF NEW YORK, FINGER LAKES SHEET
DATED: 1970, SCALE 1:250,000

D'APPOLONIA

DRAWN BY	ACS	CHECKED BY	AE	5/28/81	DRAWING NUMBER 80-778-A6
	4-29-81	APPROVED BY	JHS	5-7-81	

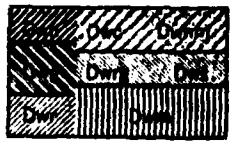
LEGEND

CANADAWAY GROUP
800-1200 ft. (240-370 m.)

Dcy Machias Formation—shale, siltstone; Rushford Sandstone; Caneadea, Canisteo, and Hume Shales; Canaseraga Sandstone; South Wales and Dunkirk Shales; *In Pennsylvania: Towanda Formation*—shale, sandstone.

JAVA GROUP
300-700 ft. (90-210 m.)

Dj Wiscoy Formation—sandstone, shale; Hanover and Pipe Creek Shales.



WEST FALLS GROUP
1100-1600 ft. (340-490 m.)

Dwr Nunda Formation—sandstone, shale.
Dwg West Hill and Gardeau Formations—shale, siltstone; Roricks Glen Shale; upper Beers Hill Shale; Grimes Siltstone.
Dwr *lower Beers Hill Shale*; Dunn Hill, Millport, and *Moreland Shales*.
Dwc Nunda Formation—sandstone, shale; West Hill Formation—shale, siltstone; Corning Shale.
Dwnm *"New Milford" Formation*—sandstone, shale.
Dwrg Gardeau Formation—shale, siltstone; Roricks Glen Shale.
Dws Slide Mountain Formation—sandstone, shale, conglomerate.
Dwm Beers Hill Shale; Grimes Siltstone; Dunn Hill, Millport, and Moreland Shales

SONYEA GROUP
200-1000 ft. (60-300 m.)

Ds In west: Cashaqua and Middlesex Shales.
In east: Rye Point Shale; Rock Stream ("Enfield") Siltstone; Pulteney, Sawmill Creek, Johns Creek, and Montour Shales.

GENESEE GROUP AND TULLY LIMESTONE
200-1000 ft. (60-300 m.)

Dg West River Shale; Genundewa Limestone; Penn Yan and Geneseo Shales; all except Geneseo replaced eastwardly by Ithaca Formation—shale, siltstone and Sherburne Siltstone.
Dgo Oneonta Formation—shale, sandstone.
Dgu Unadilla Formation—shale, siltstone.
Dt Tully Limestone.

GEOLOGY MAP LEGEND

REFERENCE:
GEOLOGIC MAP OF NEW YORK, FINGER LAKES SHEET
DATED: 1970, SCALE 1:250,000

D'APPOLONIA

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